REMARKS

Claims 1, 6, 11 and 18 are amended. Claims 1-24 remain in the application for consideration.

A substitute drawing sheet showing an amended version of Fig. 3 is included herewith, and a request for effecting the indicated drawing changes. The numeral "110" in Fig. 3 has been changed to "110a". Support for the same can be found in Applicant's specification as filed in the second sentence of the last commencing paragraph on page 8. Formal entry and acceptance of the amended drawing is requested.

The specification is amended to provide the available serial number for the blank on page 9 of the specification as filed.

Independent claims 1, 6, 11 and 18 stand rejected as being anticipated by U.S. Patent No. 5,972,430 to DiMeo, Jr. et al. Each such claim has been amended to recite simultaneously providing a) gaseous barium and strontium, b) gaseous titanium, and c) the respective gaseous oxidizer(s) to within the reactor under conditions effective to deposit a barium strontium titanate comprising dielectric layer on the substrate. Clearly, the DiMeo, Jr. et al. reference does not teach this and, in fact, teaches the opposite. DiMeo, Jr. et al. only teaches staying completely away from simultaneously providing barium, strontium, titanium and an oxidizer in gaseous form within the reactor. Specifically, the teaching is to everywhere provide the barium and strontium precursors within the reactor to, apparently, adhere to the substrate, and then

completely purging the reactor to remove all gaseous presence therein. *See*, for example, col.9, lns.39-52. It is only after this purging that the oxidant reactant source material is fed to the reactor and in the complete absence of the initially fed gaseous precursors. *See*, for example, col.9, lns.53-67 and col.6, lns.40-45. Accordingly, the reference clearly does not teach the simultaneous provision of gaseous barium, strontium, titanium and oxidizer(s) as Applicant recites. Further, the reference teaches <u>against</u> such processing by contrasting its process with continuous, non-pulsing CVD processes. *See*, for example, col.11, lns.22-37. Accordingly, the anticipation rejection of independent claims 1, 6, 11 and 18 must be withdrawn, and action to that end is requested.

Such claims are similarly not rendered obvious by any of the DiMeo, Jr. et al., Kang and/or Stauf et al. references, whether taken alone or in any combination(s). The only reference of the three pertinent to barium strontium titanate deposition disclosing the use of either H_2O_2 or H_2O is the DiMeo, Jr. et al. reference, which specifically teaches <u>away</u> from the simultaneous provision of the subject components within the reactor. Kang and Stauf et al. do not disclose such components, and are understood to teach the simultaneous provision of their other reactant components within the reactor, and therefore, are in direct contradistinction to the teaching of DiMeo, Jr. et al. Accordingly, DiMeo, Jr. et al. specifically teaches against any alleged combination of itself with either Kang or Stauf et al. Therefore, none of

these claims are obvious over any of these references, whether taken alone or in any combination(s).

The Examiner states in the conclusion of the Office Action that Stauf et al. apparently discloses "and the like". The undersigned has reviewed this document, but has found no such phrase. The phrase "or the like" can be found at col.15, ln.54, wherein it is provided that "oxidizing gas(es), such as oxygen, ozone, N_2O, or the like, and the resulting vapor/gas mixture is flowed . . . ". Regardless, such in no way discloses or suggests Applicant's independent claims, each of which recite at least one of H_2O and H_2O_2 as an oxidizer to be combined with barium, strontium and titanium in the chemical vapor deposition of a barium strontium titanate comprising dielectric layer. Specifically, the only Stauf et al. listed gasses are O_2, O_3 and N_2O. Such gasses either consist solely of oxygen or a compound including nitrogen and oxygen. Nowhere is there disclosed or suggested utilizing compounds having hydrogen and oxygen bonds, and certainly not those compounds which Applicant specifically claims. Stauf et al. did not state "or any conceivable compound having oxygen therein". Rather, it only discloses "like" compounds, which in no way would be considered by a person of skill in the art to include compounds not generically encompassed by the list given.

Applicant's rejected dependent claims should be allowed as depending from allowable base claims, and for their own recited features which are

neither shown nor suggested in the cited art. Action to that end is requested.

Applicant requests that the Examiner consider and initial the prior art references listed on Forms PTO-1449 submitted previously with a Supplemental Information Disclosure Statement dated January 3, 2002.

This application is believed to be in immediate condition for allowance, and action to that end is requested.

Respectfully submitted,

Dated: 2-19-02

By: _____

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application Serial No. 09/905,286
Filing Date . . . . . July 13, 2001
Inventor . . . . . Cem Basceri et al.
Assignee . . . . . Micron Technology, Inc.
Group Art Unit 1762
Examiner . . . . . Eric B. Fuller
Attorney's Docket No. MI22-1724
Title: Chemical Vapor Deposition Methods of Forming Barium Strontium Titanate Comprising Dielectric Layers

VERSION WITH MARKINGS TO SHOW CHANGES MADE ACCOMPANYING RESPONSE TO DECEMBER 19, 2001 OFFICE ACTION

In the Specification

The replacement specification paragraphs incorporate the following amendments. Underlines indicate insertions and ~~strikeouts~~ indicate deletions.

The paragraph beginning at line 8 on page 9 has been amended as follows:

Additional and/or alternate preferred processing can occur in accordance with any of our co-pending U.S. Patent Application Serial No. 09/476,516, filed on January 3, 2000, entitled "Chemical Vapor Deposition Methods Of Forming A High K Dielectric Layer And Methods Of Forming A Capacitor", listing Cem Basceri as inventor; U.S. Patent Application Serial No. 09/580,733, filed on May 26, 2000, entitled "Chemical Vapor Deposition Methods And Physical Vapor Deposition Methods", listing Cem Basceri as inventor; and U.S. Patent Application Serial No. ~~09/~~ 09/905,320, filed concurrently herewith, entitled "Chemical Vapor Deposition Methods Of Forming Barium Strontium Titanate Comprising Dielectric Layers, Including Such Layers Having A Varied Concentration Of Barium And Strontium Within The Layer", listing Cem Basceri and Nancy Alzola as inventors. Each of these is hereby fully incorporated by reference.

In the Claims

The claims have been amended as follows. Underlines indicate insertions and ~~strikeouts~~ indicate deletions.

1. (Amended) A chemical vapor deposition method of forming a barium strontium titanate comprising dielectric layer, comprising:

positioning a substrate within a chemical vapor deposition reactor; and

simultaneously a) providing gaseous barium and strontium within the reactor by flowing at least one metal organic precursor to the reactor, ~~and~~ b) providing gaseous titanium within the reactor, and c) flowing at least one gaseous oxidizer to the reactor under conditions effective to deposit a barium strontium titanate comprising dielectric layer on the substrate, the oxidizer comprising H_2O.

6. (Amended) A chemical vapor deposition method of forming a barium strontium titanate comprising dielectric layer, comprising:

positioning a substrate within a chemical vapor deposition reactor; and

simultaneously a) providing gaseous barium and strontium within the reactor by flowing at least one metal organic precursor to the reactor, ~~and~~ b) providing gaseous titanium within the reactor, and c) flowing at least one gaseous oxidizer to the reactor under conditions effective to deposit a barium strontium titanate comprising dielectric layer on the substrate, the oxidizer comprising H_2O_2.

11. (Amended) A chemical vapor deposition method of forming a barium strontium titanate comprising dielectric layer, comprising:

positioning a substrate within a chemical vapor deposition reactor; and

simultaneously a) providing gaseous barium and strontium within the reactor by flowing at least one metal organic precursor to the reactor, ~~and~~ b) providing gaseous titanium within the reactor, and c) flowing gaseous oxidizers to the reactor under conditions effective to deposit a barium strontium titanate comprising dielectric layer on the substrate, the oxidizers comprising at least H_2O and at least another oxidizer selected from the group consisting of O_2, O_3, NO_x, N_2O, and H_2O_2, where "x" is at least 1.

18. (Amended) A chemical vapor deposition method of forming a barium strontium titanate comprising dielectric layer, comprising:

positioning a substrate within a chemical vapor deposition reactor; and

simultaneously a) providing gaseous barium and strontium within the reactor by flowing at least one metal organic precursor to the reactor, ~~and~~ b) providing gaseous titanium within the reactor, and c) flowing gaseous oxidizers to the reactor under conditions effective to deposit a barium strontium titanate comprising dielectric layer on the substrate, the oxidizers comprising at least H_2O_2 and at least another oxidizer selected from the group consisting of O_2, O_3, NO_x, and N_2O, where "x" is at least 1.

END OF DOCUMENT